

Berkeley's Innovation Ecosystem:

Driving Innovation and Economic Growth
through Partnership and Collaboration

LBL COMMUNITY ADVISORY GROUP

NOVEMBER 2016



Agenda

1. Introduction

- *Kirsten MacDonald, Berkeley Chamber of Commerce*

2. Why Berkeley?

- *Jennifer Cogley, City of Berkeley*

3. Sepion Technologies

- *Peter Frischmann, Sepion Technologies*

4. Four Twenty Seven

- *Nik Steinberg, Four Twenty Seven*

Introduction

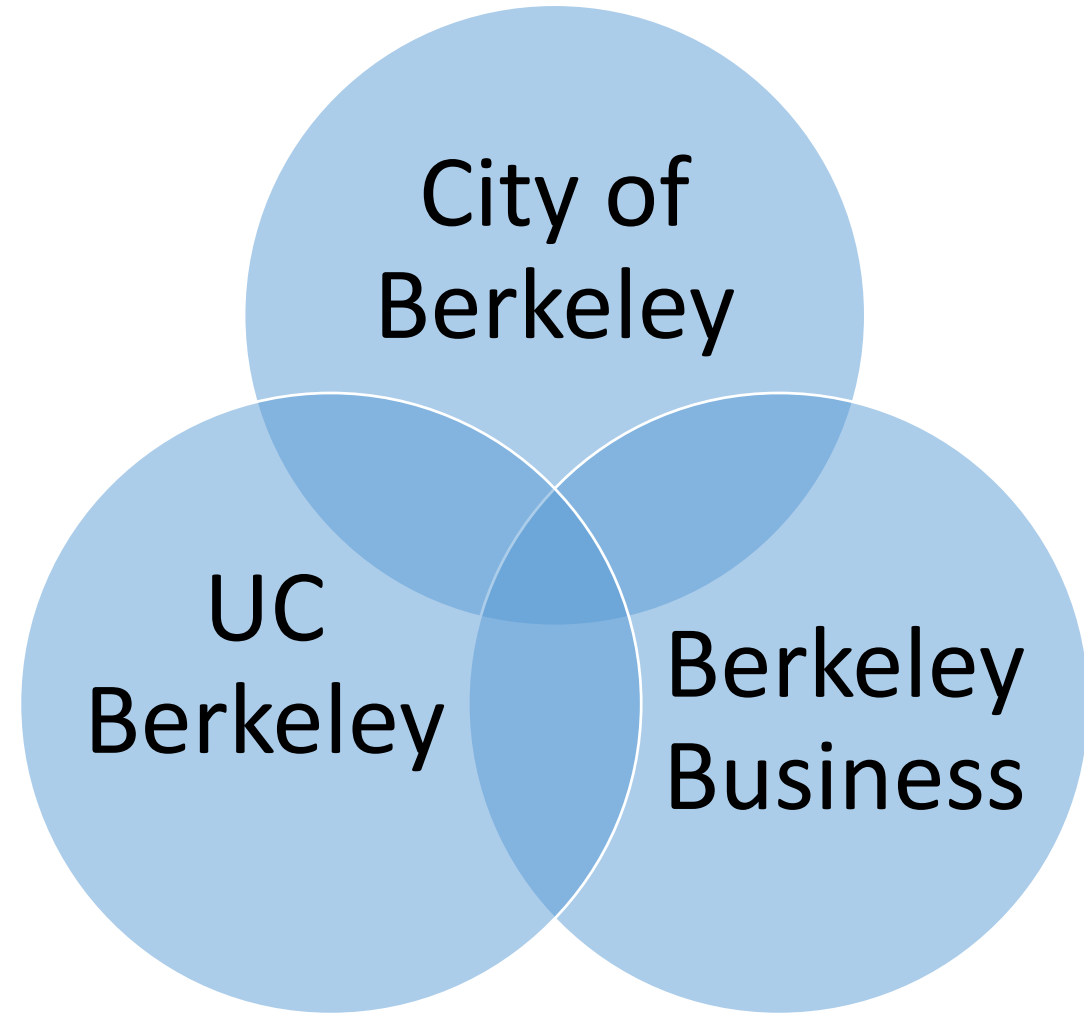
“Triple Helix”

Berkeley Chamber of Commerce a meeting point of the “Triple Helix”

Economic growth through dynamic interaction of

- Research
- Government
- Industry

Visionary Awards celebrate companies that locate in Berkeley as a result of the interactions of these players.



- Created in 2013 to celebrate business innovation in the City of Berkeley
- Positions Berkeley as a home for cutting edge ventures
- Promotes those creating high quality jobs
- Honors founders meeting 21st Century challenges
- Embodies goals of



Launch in Berkeley | Hire in Berkeley | Grow in Berkeley

Growing Partnerships

Year 1

- Berkeley Chamber
- City of Berkeley
- UC Berkeley
- The Berkeley Lab
- UCB SkyDeck
- Berkeley Startup Cluster

Year 2 - Added

- Videos from Radiant Brands

Year 4 - Added

- SF Business Times
- Berkeley Repertory Theatre



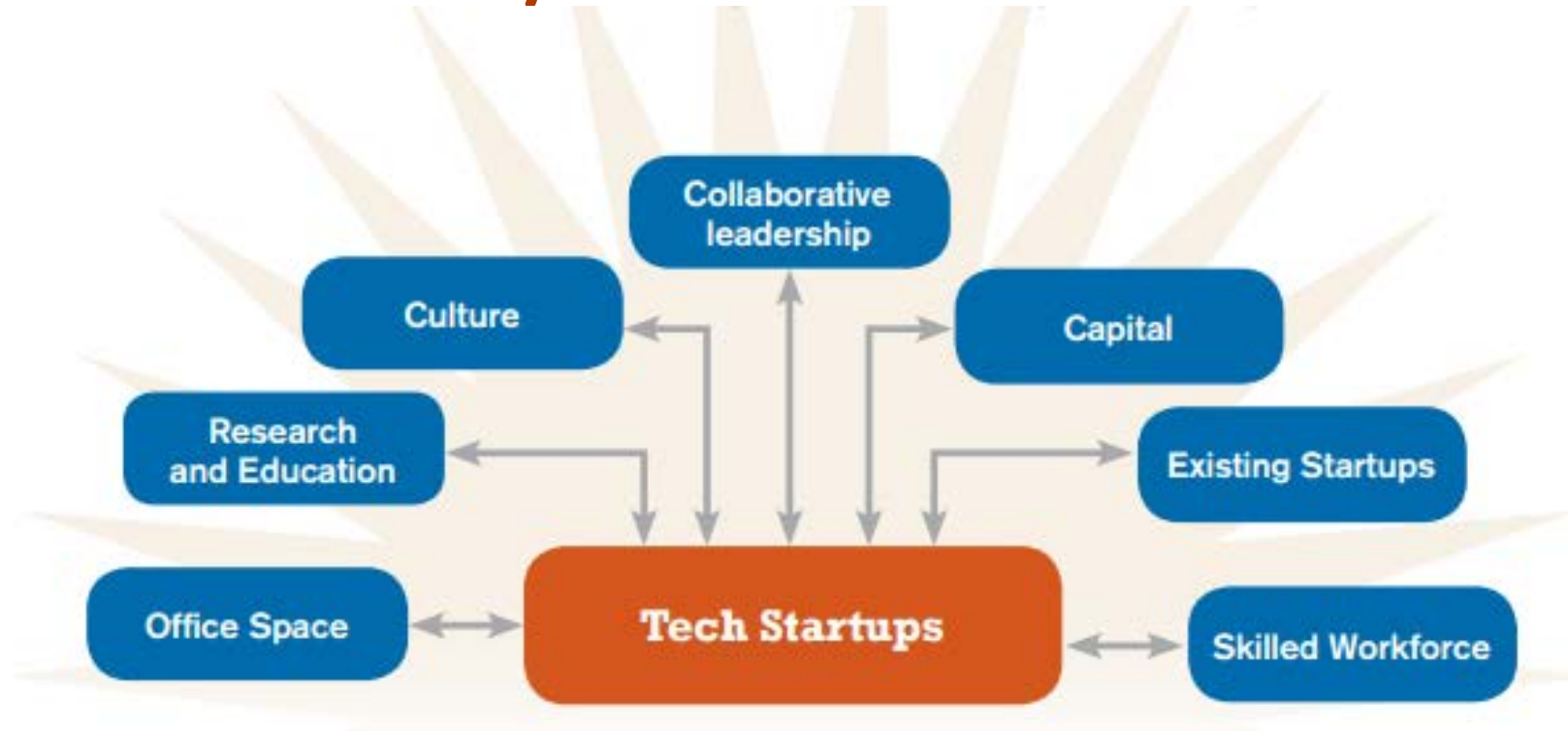
Foundational Support from Berkeley Research Group and David Teece

Why Berkeley?

Why Berkeley?

- Innovation Ecosystem
 - Culture of Socially Minded Enterprise
 - Stellar Quality of Life

Innovation Ecosystem



SkyDeck | CITRIS Foundry | QB3 East Bay Innovation Center | Cowork

Culture of Socially Minded Enterprise



Impact Hub Berkeley



*Berkeley's history
in socially minded
entrepreneurial
businesses just
made sense for our
model.*

in Berkeley.

Community
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World class art

BERKELEY ART MUSEUM · PACIFIC FILM ARCHIVE

Berkeley Visionary Awards



<https://vimeo.com/139373758>

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Sepion Technologies



2014



**JOINT CENTER FOR
ENERGY STORAGE RESEARCH**

2015



CORPSTM
NSF Innovation Corps

who cares?

membranes

they let through things you want
and keep out the things you don't



Guaranteed
To Keep You Dry

GORE-TEX[®]
fabrics



D U R A B L Y W A T E R P R O O F

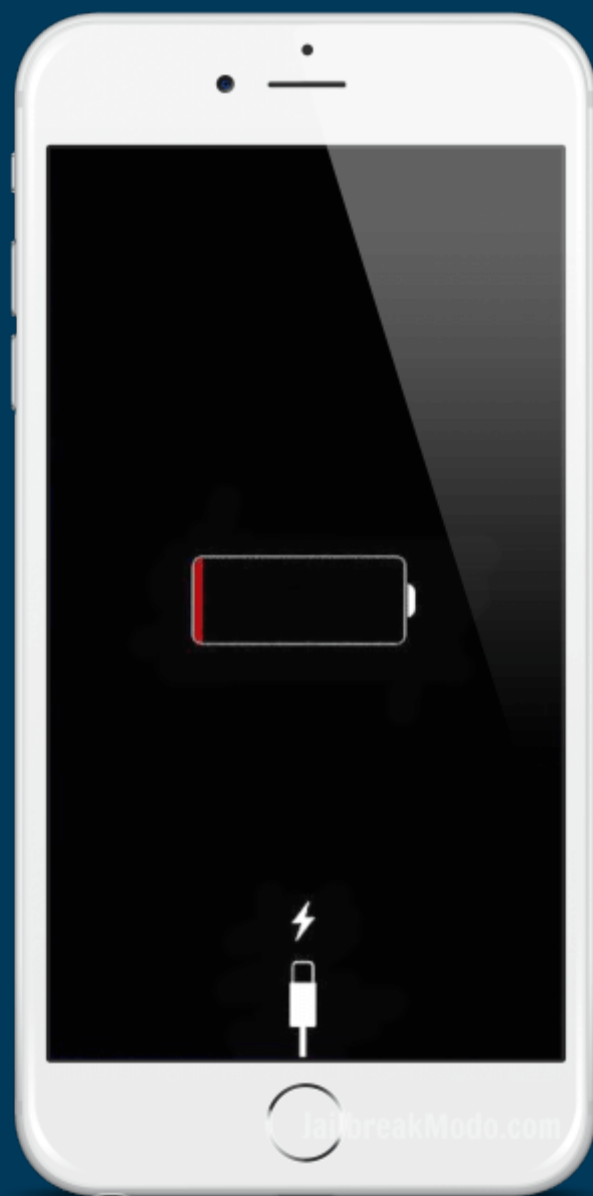
lithium ion battery membranes



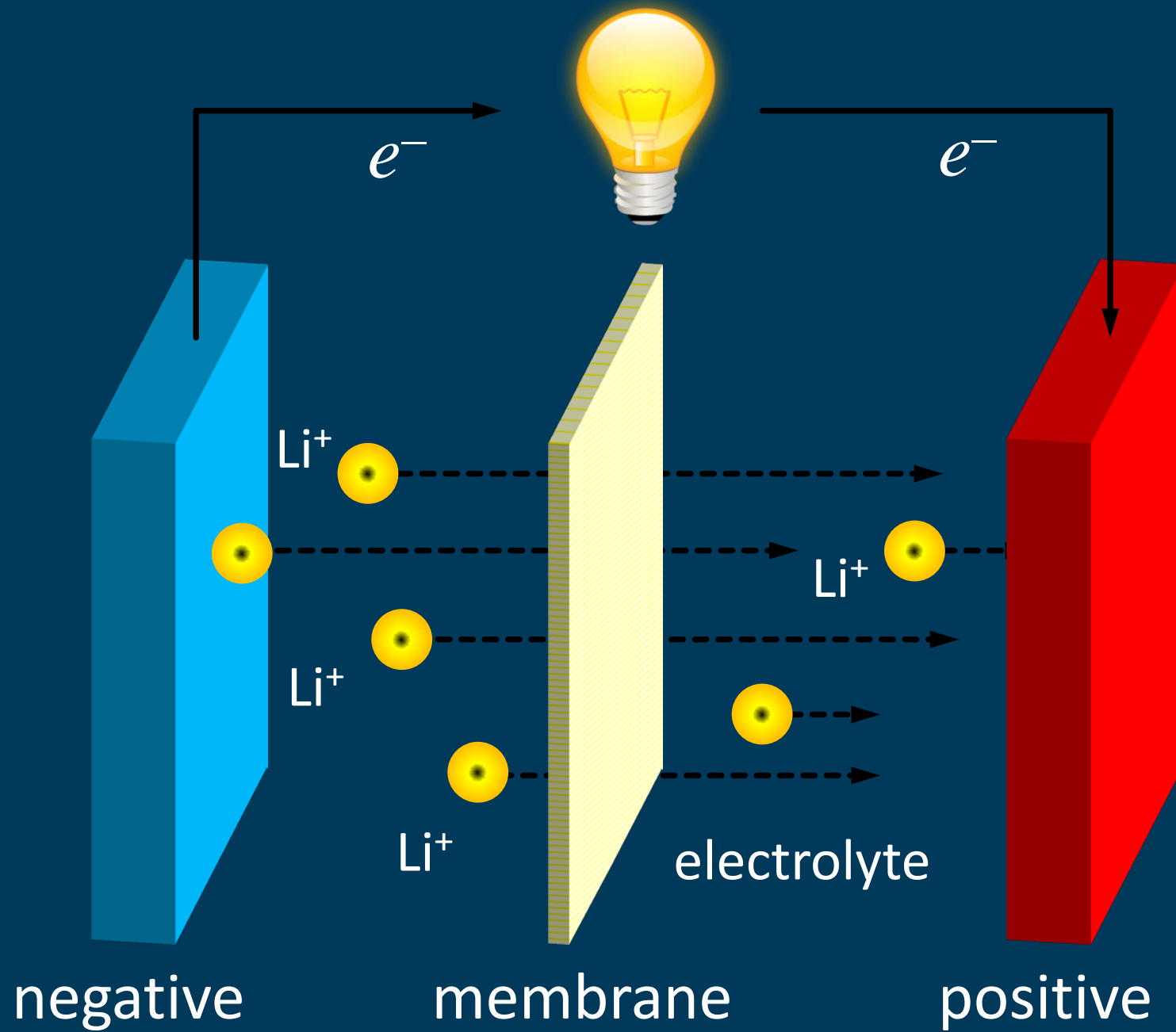
membrane market

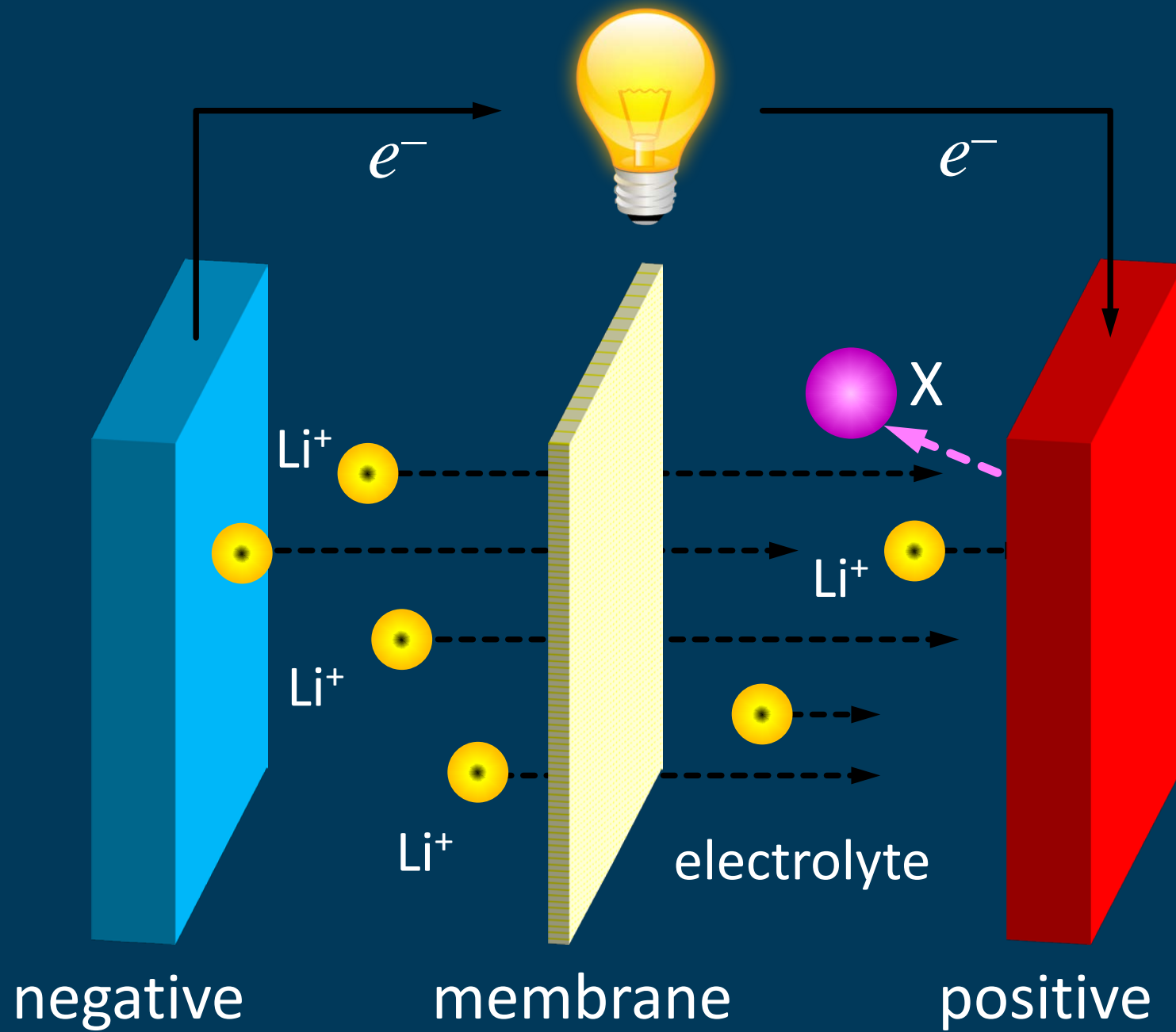
11 billion ft²

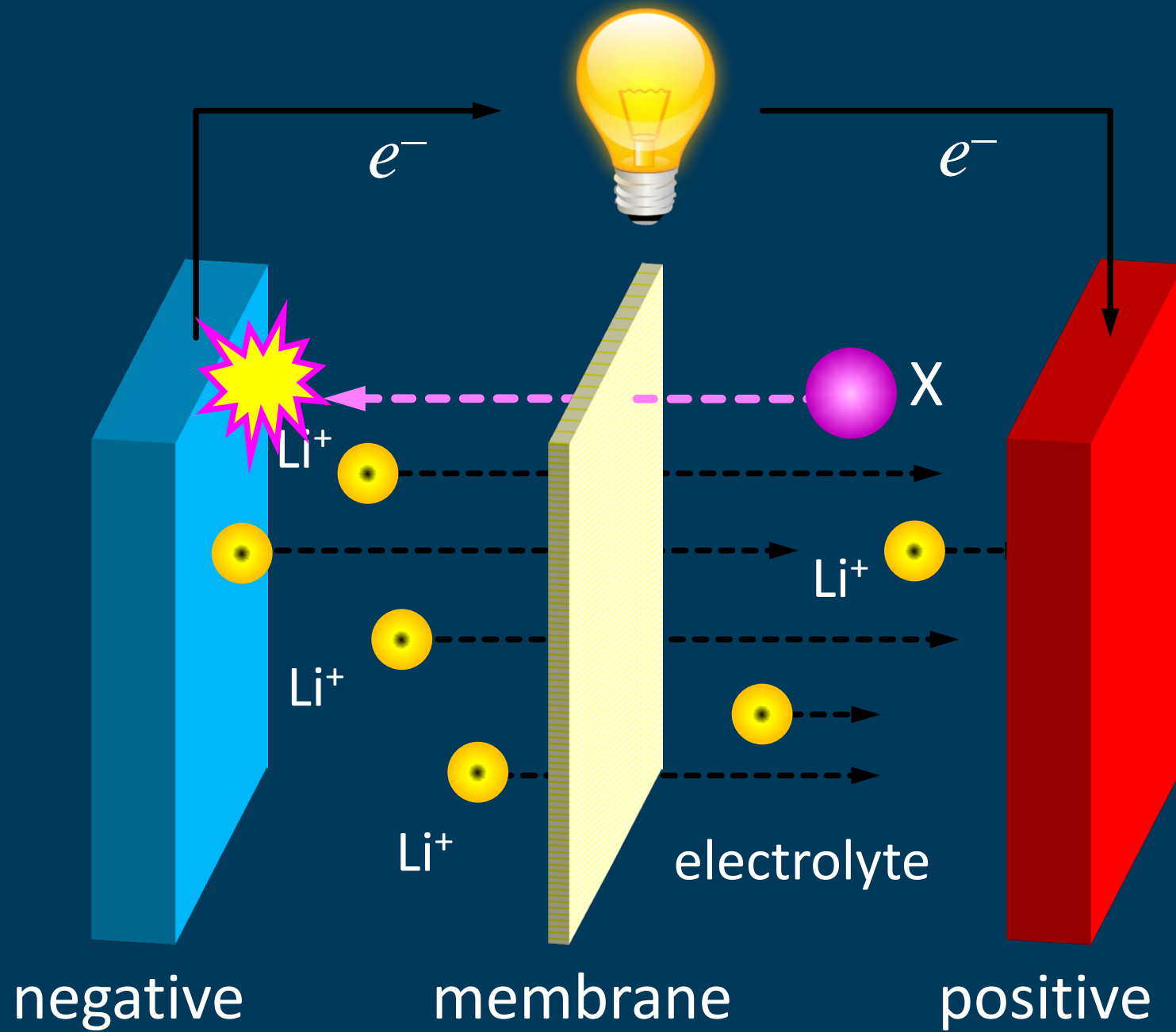
\$1.5 billion

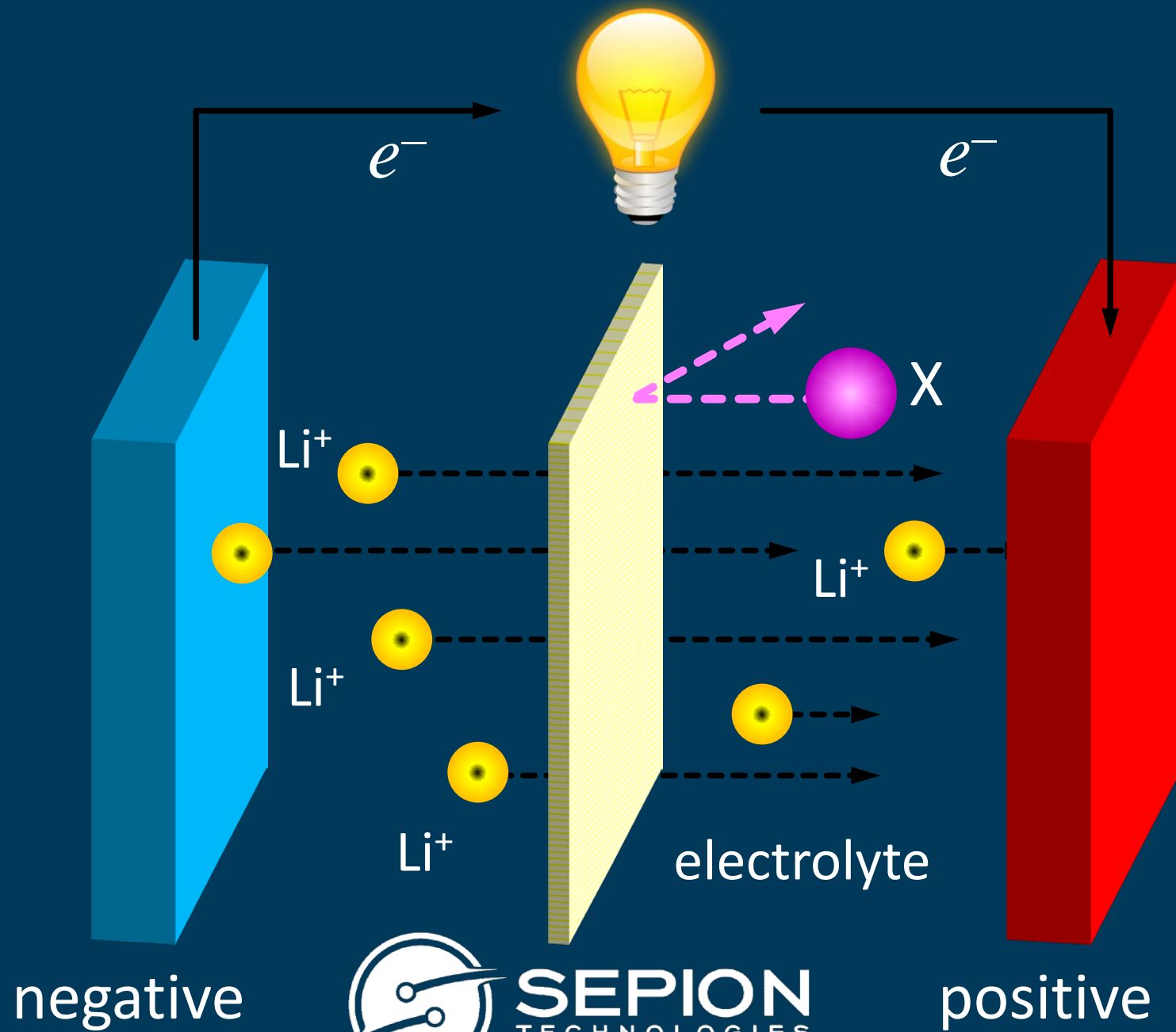












lithium-ion battery types



cobalt
(LiCoO_2)

1000 cycles

dangerous

\$27.0/kg



manganese
(LiMn_2O_4)

500 cycles

safe

\$1.65/kg

1st product

commercial battery
membrane coating

for low-cost, long-life, and safe manganese-
type lithium-ion batteries



our solution drops into
existing battery manufacturing lines

\$2.2 million

non-dilutive funding



cyclotronroad



Our Team



Peter Frischmann
Co-founder



Brett Helms
Co-founder

Our Partners



Carnegie
Mellon
University



SEPARATE THE GOOD FROM THE BAD



Peter Frischmann
(208) 406-9888
pete@sepiontechnologies.com

Four Twenty Seven



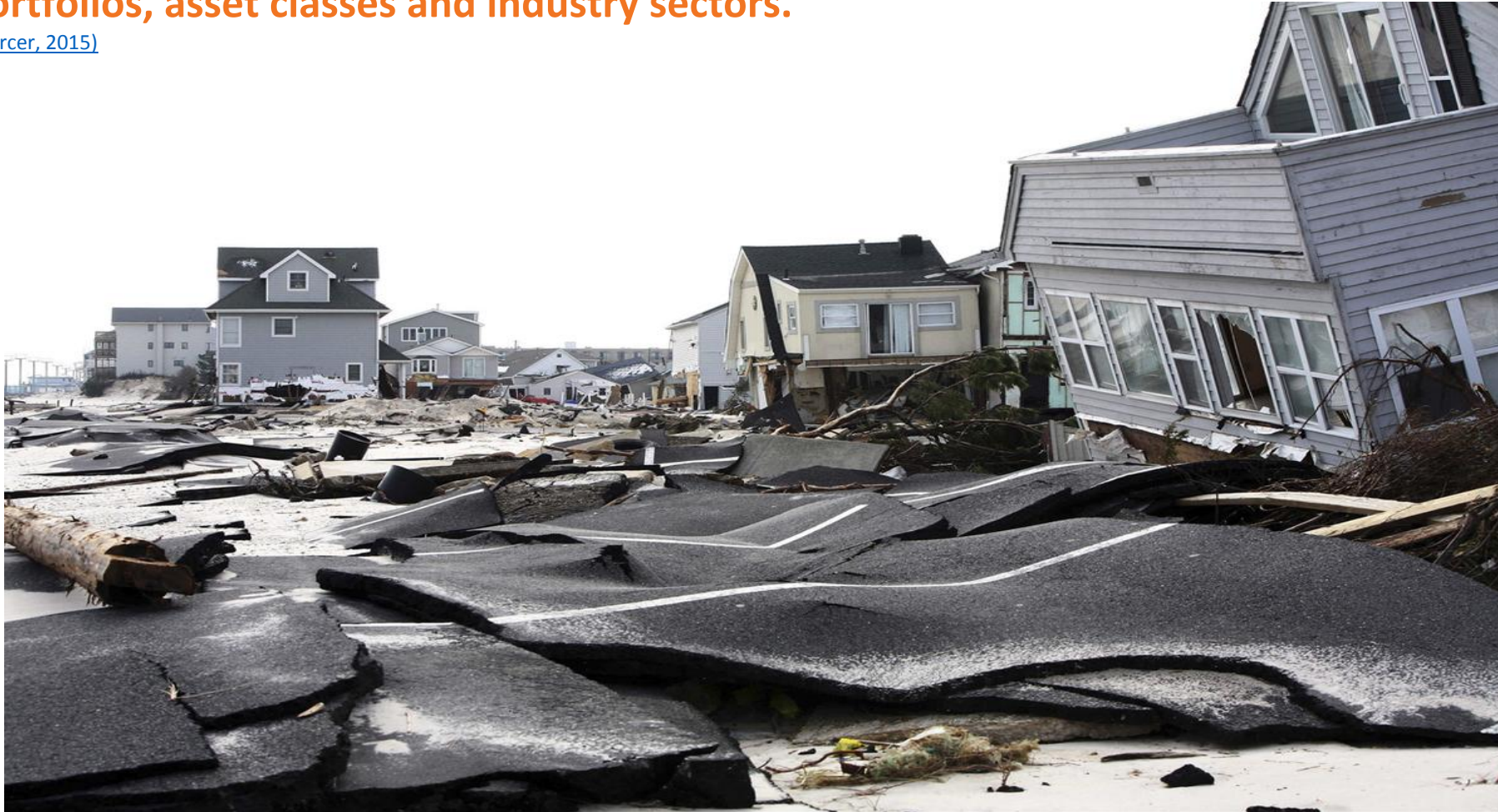
Four Twenty Seven
Climate Solutions

Bringing climate intelligence into economic and financial
decision-making



Climate change will cause \$1.5 trillion of potential impact of climate on returns for portfolios, asset classes and industry sectors.

[\(Mercer, 2015\)](#)



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Clients

...deploying product and services to 'blue chip' customers across key sectors.

Public Sector

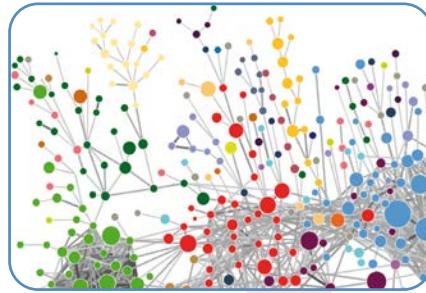


Private Sector

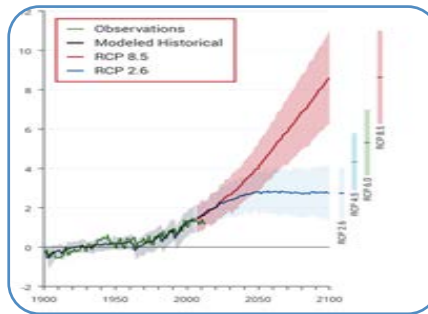
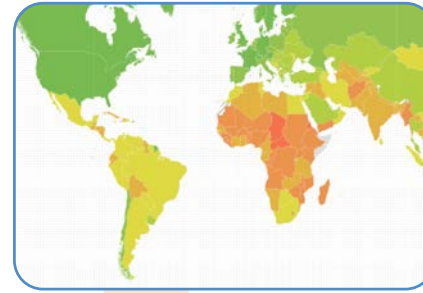


Solution

Economic and Trade data



Social vulnerability and natural resources data



Climate data



Company data



Business Climate Analytics



Product Stack

Weaving Climate Data into Business and Policy Decision-Making



Corporate Climate Analytics

Monetize impacts on operations, supply chain, and distribution.

Cost benefit analysis of risk management response in context of uncertainty

Identify opportunities: new markets or strategic reallocation



Social Climate Analytics

Quantify impacts on public health, safety, and natural resources.

Develop localized adaptation strategy empower community engagement

Map growing market for adaptation and resilience investment opportunities



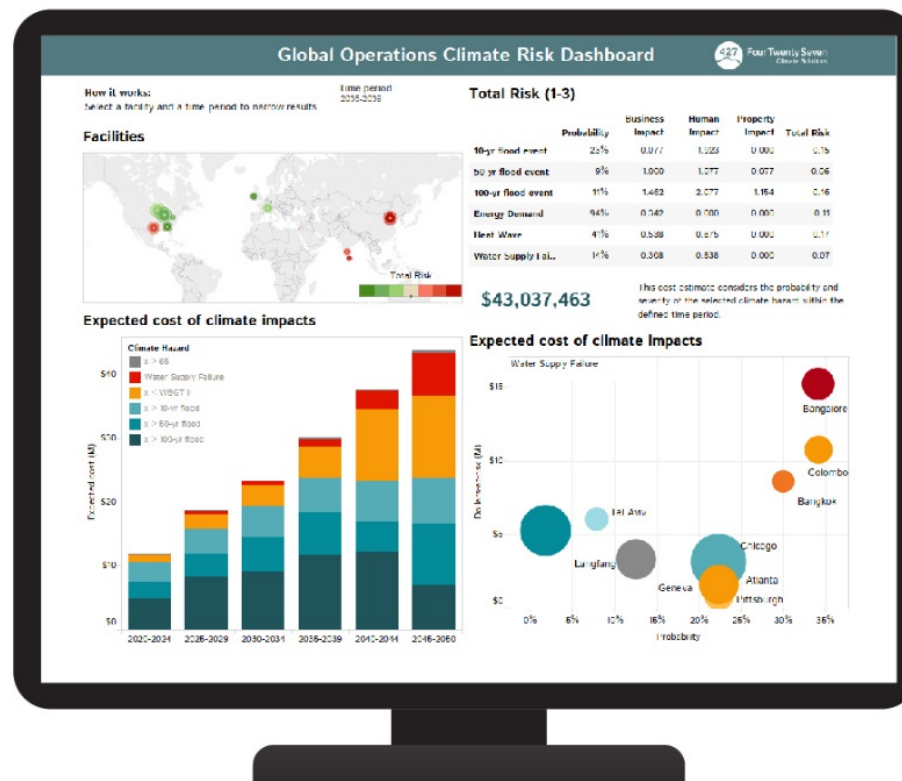
Bridging the Knowledge Gap

Corporate Climate Risk Management

- Identify hotspots, quantify climate risk
- Monetize costs, determine ROI for resilience investments

Reference Clients

- Develop a responsible



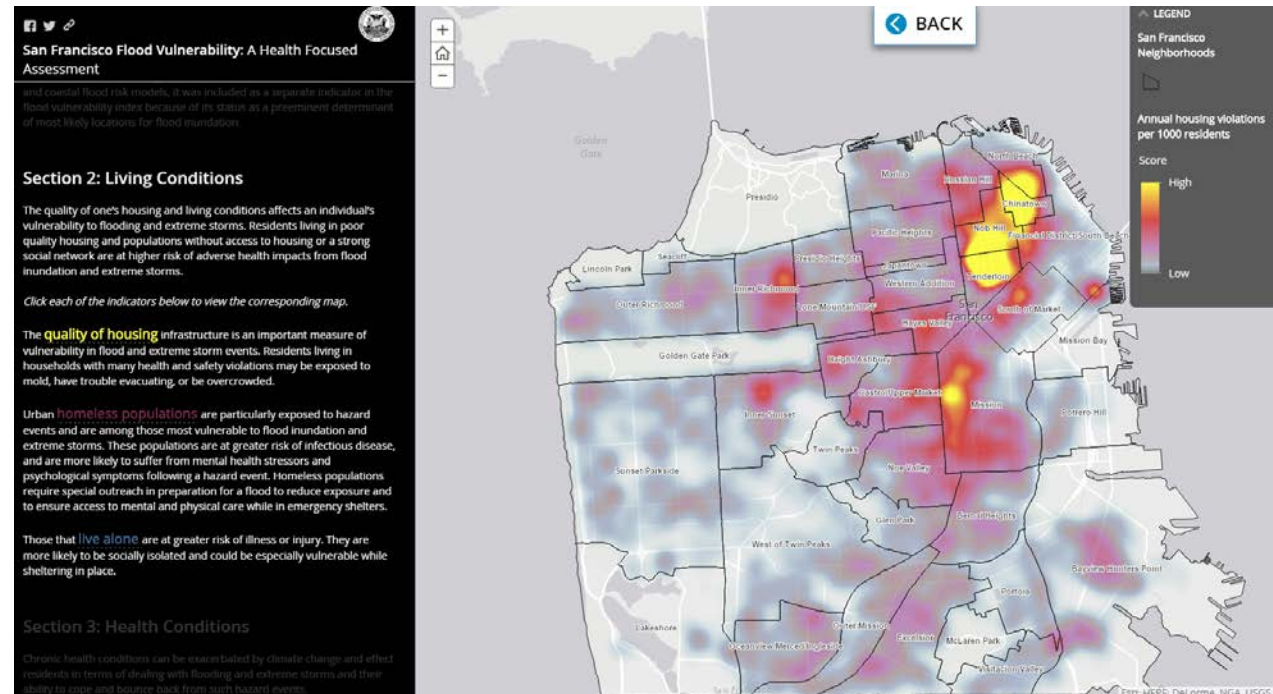


Bridging the Knowledge Gap

Decision-support and policy analysis

- Vulnerability assessments and policy planning
- Custom-built climate social analytics and indices
- Mapping, visualizations and outreach

Reference Clients



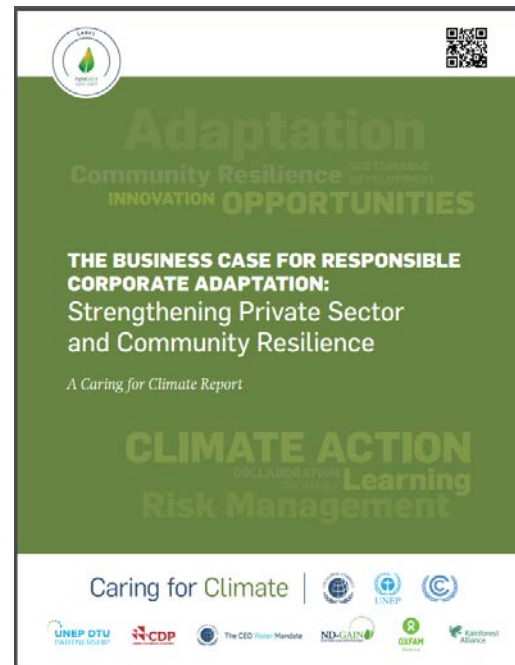


Bridging the Knowledge Gap

Thought-Leadership & Research

- Independent and client-funded research
- Science and policy monitoring
- Disseminate best practices, provide guidance

Reference Clients



LBNL – 427 Collaboration

Today

- Informal relationship via:
 - Technical review and feedback:
 - Earth Systems and Society, Climate and Ecosystem Sciences Division (CESD) in the Earth and Environmental Sciences Area (EESA)
 - Data:
 - 427 user of the Community Earth System Model (CESM) model, developed by LBNL
 - Climate Readiness Institute member and active participant

Tomorrow

- Formalize relationship via:
 - Advisors
 - Joint research collaborations
 - Vehicle for applied science
 - Alternative contracting mechanisms



Nik Steinberg

Director of Analytics

Four Twenty Seven, Inc.

nsteinberg@427mt.com

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Upcoming CAG Meetings

- January 23, 2017
- March 13, 2017
- June 12, 2017
- September 11, 2017
- November 13, 2017